

Non-Technical Abstract

Neuroblastoma is a childhood cancer with about 500 new cases every year in the United States. Children with localized neuroblastoma can often be cured. However children with widespread disease are much harder to treat and often die from their disease. Researchers are therefore looking for other ways of treating this disease. One-way is to use the child's own immunity and redirect it to the cancer. We have already used a type of immune cell called a T-lymphocyte to treat cancer caused by a virus called Epstein-Barr Virus (EBV). We have shown that these cells work well for these patients. We are going to try to put a new gene in these cells so that they can now recognize and kill cancer cells in children with advanced treatment resistant neuroblastoma. We will put this new gene into these T-cells using a carrier called a retroviral vector. We will follow these T-lymphocytes by tracing the inserted gene in blood samples we take from the patient. This way we will see how well they work. If we get a good result we could put a different gene in T-lymphocytes and make them recognize other types of cancer cells. We have treated more than 70 children over a 10 year period with related retroviral vectors without harm, however we will carefully follow-up these children with advanced cancer for up to 15 years to make sure there are no bad effects from our treatment.